AMENDMENT TO THE CLAIMS

1. (Currently Amended) A method of identifying a clean speech signal from a noisy speech signal, the method comprising:

receiving an observation vector representing a segment of a noisy speech signal;

estimating a clean speech value and a noise value based on the observation vector;

using the clean speech value and the noise value to set a gain for a filter wherein setting a gain for a filter comprises defining the gain as a ratio with denominator of the ratio ~~comprising~~ being the sum of the clean speech value and the noise value and a numerator of the ratio that is a function of the clean speech value and the noise value; and

applying the observation vector to the filter to produce a filtered clean speech vector representing a segment of a clean speech signal.

2. (Currently Amended) The method of claim ~~1~~ 24 wherein estimating a clean speech value and a noise value comprises using parameters that describe a distribution of noise values.

3. (Original) The method of claim 2 further comprising determining the parameters of the distribution of noise values.

4. (Original) The method of claim 3 wherein determining the parameters of the distribution of noise values comprises determining the parameters based on multiple segments of the noisy speech signal.

5. (Original) The method of claim 3 wherein determining the parameters of the distribution of noise values comprises determining a mean of the distribution of noise values using an iteration.

6. (Original) The method of claim 5 wherein determining a mean of the distribution of noise values using an iteration comprises at each iteration updating the mean by adding a value to the value of the mean in a past iteration, the value added to the mean not being computed based on a product formed between a covariance of the noise distribution and a difference between the observation vector and another value.

7. (Cancelled)

8. (Cancelled)

9. (Currently Amended) The method of claim ~~1~~ 24 wherein defining the gain as a ratio comprises defining the ratio such that it is guaranteed to be positive if the clean speech value and the noise value are positive.

10. (Currently Amended) The method of claim ~~1~~ 24 wherein the observation vector has been formed without applying a frequency-based transform.

11. (Cancelled)

12. (Cancelled)

13. (Currently Amended) A computer-readable storage medium having computer-executable instructions for performing steps comprising:

obtaining an estimate of a clean speech value and an estimate of a noise value derived from a noisy speech signal;

setting a numerator of a filter gain ratio as a function of the clean speech value and the noise value;

setting a denominator of the filter gain ratio as ~~a function~~the sum of the clean speech value and the noise value;

using the filter gain ratio in a filter that is applied to the noisy speech signal.

14. (Previously Presented) The computer-readable storage medium of claim 13 wherein obtaining an estimate of a noise value comprises estimating the noise value based in part on a parameter that describes a noise distribution.

15. (Previously Presented) The computer-readable storage medium of claim 14 further comprising determining the parameter that describes the noise distribution.

16. (Previously Presented) The computer-readable storage medium of claim 15 wherein determining the parameter that describes the noise distribution comprises using the noisy speech signal to determine the parameter.

17. (Previously Presented) The computer-readable storage medium of claim 16 wherein determining the parameter comprises determining a mean iteratively, wherein each iteration utilizes an update equation that is formed by maximizing the joint probability of a sequence of observation vectors and a sequence of mixture component indices.

18. (Previously Presented) The computer-readable storage medium of claim 13 wherein obtaining an estimate of a clean speech value and an estimate of a noise value comprises estimating a cepstral clean speech value and a cepstral noise value in a cepstral domain and converting the cepstral clean speech value and the cepstral noise value into the spectral domain to produce a spectral domain clean speech value and a spectral domain noise value. .

19. (Previously Presented) The computer-readable storage medium of claim 18 wherein obtaining an estimate of a clean speech value and an estimate of a noise value further comprises

smoothing the spectral domain clean speech value and the spectral domain noise value across frequencies.

20. (Previously Presented) The computer-readable storage medium of claim 18 wherein obtaining an estimate of a clean speech value and an estimate of a noise value further comprises smoothing the spectral domain clean speech value and the spectral domain noise value across time.

21. (Previously Presented) The computer-readable storage medium of claim 13 wherein obtaining an estimate of the noise value comprises utilizing a parameter that describes a distribution for a residue error.

22. (Previously Presented) The computer-readable storage medium of claim 21 further comprising determining the parameter that describes the distribution for the residue error without using clean speech training data.

23. (Previously Presented) The computer-readable storage medium of claim 13 wherein setting a numerator comprises setting a numerator such that the numerator is guaranteed to be positive if the clean speech value and the noise value are positive.

24. (Previously Presented) A method of identifying a clean speech signal from a noisy speech signal, the method comprising:

receiving an observation vector representing a segment of a noisy speech signal;

determining a covariance of a residue error without using stereo training data;

estimating a clean speech value and a noise value based on the observation vector wherein estimating a clean speech value and a noise value comprises using a parameter that describes the covariance of a residue error;

using the clean speech value and the noise value to set a gain for a filter.